

Claims

1. Prosthetic foot, comprising at least one flexible element that is deflected under load during a gait cycle of a user of the foot and a plurality of constraining elements that constrain deflection of the at least one flexible element such that it assumes an arcuate roll-over shape during the gait cycle of the user.
2. The foot of claim 1 wherein the constraining elements are incompressible.
3. The foot of claim 1 wherein the constraining elements are inextensible.
4. The foot of claim 1 wherein the flexible element comprises a flexible sole element of the foot.
5. The foot of claim 4 wherein the constraining elements are disposed on the flexible sole element to constrain deflection thereof so that the flexible sole element assumes the roll-over shape at a maximum deflected position thereof.
6. The foot of claim 5 wherein regions of the flexible sole element reside between and interconnect adjacent constraining elements.
7. The foot of claim 5 wherein the constraining elements are spaced apart by upstanding gaps in a direction of a foot longitudinal axis and are adapted to abut one another in a manner to constrain maximum deflection of the flexible sole element so that it assume the roll-over shape.
8. The foot of claim 7 wherein the roll-over shape is an approximate circular arc roll-over shape.

9. Prosthetic foot, comprising at least one flexible sole element that is deflected under load during a gait cycle of a user of the foot and a plurality of constraining elements that are abuttable against one another at a maximum deflected position of the flexible sole element to constrain the at least one flexible sole element to assume an approximate circular arc roll-over shape during the gait cycle of the user.
10. The foot of claim 9 wherein the constraining elements are incompressible.
11. The foot of claim 9 wherein regions of the flexible sole element reside integrally between and interconnect adjacent constraining elements.
12. The foot of claim 5 wherein the constraining elements are hollow bar segments that are spaced apart from one another by upstanding gaps in a direction of a foot longitudinal axis, the bar segments having oppositely facing top edges that are adapted to abut respective top edges of an adjacent bar segment to constrain maximum deflection of the flexible sole element.
13. The foot of claim 9 wherein the constraining elements are formed integrally on the flexible sole element and collectively form a keel of the foot.
14. The foot of claim 9 further including an attachment segment for connection to a pylon connector of a residual limb socket.
15. The foot of claim 9 further including a heel segment that is configured to allow bending of the foot at the heel segment.

16. A method of making a prosthetic foot, comprising connecting at least one flexible element that is deflected under load during a gait cycle of a user of the foot and a plurality of constraining elements that constrain deflection of the at least one flexible element such that the flexible element assumes an arcuate roll-over shape during the gait cycle of the user.
17. The method of claim 16 wherein the at least one flexible element is molded integrally with the constraining elements.
18. The method of claim 16 including forming gaps between adjacent constraining elements in a direction of a foot longitudinal axis.